WHAT IS CLAIMED IS:

1. A vaccine for equine influenza virus, comprising an effective immunizing amount of an isolated DNA, the isolated DNA comprising an HA1 encoding sequence of a strain of equine-2 influenza virus, and a pharmacologically acceptable carrier or diluent.

2. The vaccine according to claim 1, wherein the HA1 encoding sequence is selected from the group consisting of strains A/Eq/Kentucky/98, A/Eq/Miami/63, A/Eq/Kentucky/81, A/Eq/Fontainebleau/79, A/Eq/Kentucky/94, A/Eq/Newmarket/2/93, A/Eq/New York/99, and A/Eq/Oklahoma/2000.

3. The vaccine according to claim 1, wherein the HA1 encoding sequence is for strain A/Eq/Kentucky/98.

4. The vaccine according to claim 1, wherein the HA1 encoding sequence comprises the nucleotide sequence of SEQ ID NO: 1.

5. The vaccine according to claim 1, further comprising one or more of the group consisting of additional antigenic components, encoding sequences for additional antigenic components, and other vaccines.

6. The vaccine according to claim 1, further comprising a vector for containing the HA1 encoding sequence.

7. The vaccine according to claim 6, wherein the vector is a eukaryotic expression vector.

8. The vaccine according to claim 7, wherein the vector is selected from the group consisting of pcDNA3.1/V5-His-TOPO and pVAX1.

9. The vaccine according to claim 1, further comprising an adjuvant.

10. The vaccine according to claim 9, wherein the adjuvant is selected from the group consisting of complete Freund's adjuvant, incomplete Freund's adjuvant, saponin, mineral gels, surface active substances, pluronic polyols, polyanions, peptides, oil or hydrocarbon emulsions, keyhole limpet hemocyanins, and dinitrophenol.

11. The vaccine according to claim 9, wherein the adjuvant is METASTIM®.

12. The vaccine according to claim 1, further comprising a liposome into which the HA1 encoding sequence is encapsulated.

13. A method of inducing an immune response against equine influenza virus, comprising administering to an equid an effective immunizing amount of the vaccine of claim 1.

14. The method according to claim 13, further comprising the steps of inserting the HA1 encoding sequence into a vector and delivering the vaccine intranasally into the respiratory tract.

15. The method according to claim 14, wherein the vector is a eukaryotic vector.

16. The method according to claim 15, wherein the vector is selected from the group consisting of pcDNA3.1/V5-His-TOPO and pVAX1.

17. The method according to claim 15, wherein the vector is a liposome.

18. The method according to claim 13, wherein the vaccine is administered at a dosage of at least 0.01μg DNA per gram of body weight.

19. The method according to claim 13, wherein the vaccine is administered at a dosage falling within the range of 0.001μg DNA per kilogram of body weight to 0.01μg DNA per gram of body weight.